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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,411	07/06/2001	Kazim Ozbaysal	13DV14050	5957

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EXAMINER	
WESSMAN, ANDREW E	
ART UNIT	**PAPER NUMBER**
1742	6

DATE MAILED: 08/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

mk-6

Office Action Summary	Application No.	Applicant(s)	
	09/900,411	OZBAYSAL, KAZIM	
	Examiner	Art Unit	
	Andrew E Wessman	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Claims 1-21 have been submitted for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4-6, 8, 9, 12, 13, 16, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over ASM Handbook Volume 2.

ASM Vol. 2 teaches (page 622) that alpha-beta titanium alloys of 4 percent aluminum, 4 percent molybdenum, 2 percent tin, and 0.5 percent silicon are known in the art by the designation IMI 550. ASM Vol. 2 also teaches (page 618) that such alloys can be heat treated to form an alpha prime microstructure, which is disclosed (page 606) to be a hexagonal martensite phase. Such heat treating involves (page 618) a solution treatment at approximately 15°C above the beta transus point (990°C as listed on page 614), which amounts to a heat treatment at 1005°C, or 1840°F. The titanium alloy part is then water quenched and then tempered at 650-750°C (1202-1382°F) for a period of two hours.

ASM vol. 2 does not specifically teach cooling the alloy at a rate of less than 15°F per second. However, ASM vol. 2 teaches (page 618) that parts of the alloy composition should be cooled at a slow rate in order to not induce residual stresses, and that furnace or air cooling are acceptable means, and such means inherently have

a cooling rate of less than 15°F per second. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cool the alloy parts at a rate of less than 15°F per second in order to prevent inducing residual stresses as taught in ASM vol. 2.

In regards to the features of claims 4, 5 and 16, ASM vol. 2 teaches (page 614) that IMI 550 is forged at temperatures of 1650-1775°F.

In regards to the features of claims 6 and 17, ASM vol. 2 teaches (page 643) that titanium articles may be weld repaired.

In regards to the features of claim 8, ASM vol. 2 teaches (page 618) that furnace or air cooling should be used to cool the titanium alloy parts, and such cooling processes would inherently have a cooling rate of between 1 and 15°F per second.

In regards to the features of claims 9 and 19, ASM vol. 2 teaches (page 618) stress relieving titanium alloy parts, and teaches that the temperature the process is conducted at is dependent upon the amount of time the temperature is conducted at, and 1000 to 1050°F would inherently be a temperature at which the process could adequately be conducted depending on the length of time of the process.

4. Claims 2, 3, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over ASM vol. 2 in view of Ruckle et al. (U.S. Patent No. 4,631,092).

ASM vol. 2 is discussed in above paragraph 3.

ASM vol. 2 does not teach the alloy member being a gas turbine compressor blade, nor does ASM vol. 2 teach the part having one section of thickness greater than 0.2 inches and one section of thickness of less than 0.2 inches.

Ruckle et al. teaches (col. 1, lines 42-44) that titanium articles similar to those of the claimed invention may be used in compressor blades for gas turbine engines because of the high strength of the parts, and may have thicknesses of between 0.05 inches and 0.5 inches.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the alloy of ASM vol. 2 in a gas turbine compressor blade as taught by Ruckle et al. with the dimensions as taught by Ruckle et al. because such an alloy has desirable strength properties for such an application.

5. Claims 7, 10, 11, 18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over ASM vol. 2 in view of Whang (U.S. Patent No. 4,512,826).

The teachings of ASM vol. 2 are discussed in above paragraph 3.

ASM vol. 2 does not teach heat treating the alloy for four to six hours, nor does ASM vol. 2 teach wrapping the part in tantalum foil for the process.

Whang teaches (col. 4, lines 18-23) that aging of titanium alloys can be conducted from 2-10 hours. Whang also teaches (col. 7, lines 8-15) that the titanium alloy parts can be wrapped with tantalum foil in order to prevent contamination of the parts.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to wrap the part in tantalum foil and perform the aging for 2-10 hours as taught by Whang, with the alloys of ASM vol. 2, because it would be useful for creating the desired phase structure and preventing contamination, as taught by Whang.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew E Wessman whose telephone number is (703)305-3163. The examiner can normally be reached on Monday through Friday, 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703)308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

GEORGE WYSZOMIERSKI
PRIMARY EXAMINER

AEW
August 20, 2002